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[For location of mineral deposits and other raw materials and indications of their importance to the economy of Ukraine, see category 116, pp. 146-188. For location and productivity of various industries, see pp. 164-188.]

132 The many abysses and canyons are a disadvantage. As there are no trees and therefore few birds, there are very many insects. There are also other pests and disadvantages connected with the climate. Ukraine has a continental climate, but it is milder than in Russia. The average yearly temperature of 8.10° Celsius corresponds to that of Erfurt (8.3°). The difference between the warmest month (July) and the coldest (January) is bigger than in Erfurt (18.8°) and increases towards the east (Lviv 23.4°, Kyiv 25.3°, Kharkiv 28.8°); the period of vegetation decreases in the same direction (Erfurt 218 days, Lviv 211, Kyiv 203, Kharkiv 201). The lack of clouds is favorable to growth and the ripening process.

Apart from mountainous areas, there is a rainfall in the North-west of 600 mm, in Galicia 700 mm, a figure which decreases for the central steppe to 500 mm and in the south steppe to 400 mm. In a limited territory round the Sea of Oziv and the Black Sea it is as low as 300 mm, the minimum in USA for successful agriculture. 6 million ha of the steppe often suffer from drought and bad harvests. The most important tasks of agriculture in Ukraine are to combat drought and to intensify methods of cultivating the soil; irrigation schemes in connection with the power station on the Dnipro which would ensure irrigation of 1—2 million ha, have not yet been carried out.

3. Utilisation of Soil

● 311 Arable land in Ukraine amounts to 66 % of the entire area, in the steppe even to 80 %. In France, Italy, Germany and Roumania the proportion is 41—45 %, while the average for USSR including Ukraine is only 31 %. Only in Hungary and Denmark we find a situation similar to that in Ukraine, though on a much smaller scale. Ukraine must rank as the first agrarian state in Europe.

The proportion of forest land is correspondingly low (12 %), though in the mountains and Polesya it accounts for 35—38 %; in the steppe it sinks as low as 4 %. Even the European countries that are poorest in forests, such as Italy and France, have 16—19 % forest land; the most of them reach the double of the figure for Ukraine

The 15 % meadows and pastureland is a little lower than the average for most European countries; this figure is higher for Polesya, the Carpathians and the foothills of the Caucasus (25—30 %); in the more intensively managed areas of the Right-Bank Region it sinks to 5 %. Ukraine (like Bohemia and Moravia) has only 7 % of land that cannot be utilised for agriculture or forestry, a proportion that is 16 % for Polesya alone. This figure is considerably higher for most European countries: Germany, Roumania, France and Italy have 12—19 %, USSR 17 %. 311

20 % of all plowed lands lie fallow, as, with the exception of some areas in the West, the three-crop rotation system is general. Grain takes up 76 % of the arable land, 90 % even in the steppe. Since the first World War this share has declined in favor of technical cultures which have doubled their pre-war area. In 1935 they accounted for 9 %; a further 8 % is used for other vegetation for food (potatoes), 7 % for fodder plants.

Wheat and barley are the two kinds of grain that are most characteristic for Ukraine, though much rye is also grown. Its share (21 %) of the land laid down in grain and potatoes was in the years 1931—35 between that of wheat (32 %) and that of barley (13 %). Oats followed (10 %), then maize (9 %), millet (6 %) and buckwheat (3 %), potatoes (6 %). Rye is above all used for domestic consumption. 241

4. Grain: Areas of Production and Varieties

The biggest surpluses in grain are harvested in the old provinces of Katerynoslav, Kherson, Tauria and the Kuban area, crops being wheat and barley and others. The proportion of these two varieties in the entire yield of grain decreases as we pass from south-east to north-west. In Western Ukraine, Volynia and the district of Tarnopil are areas of surplus yields while the rest of Galicia has to import grain. Wheat thrives best on the Black Earth of what was once steppe and occupies about 1/3 of the area laid down in grain and potatoes. Cultivation of wheat increased for a long time in accordance with the growing world consumption, but decreased when facilities for export disappeared and when domestic consumption became more important (see tables 1 and 2). 243

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successful (45 000 t). Sunflowers were cultivated in 1935 on an area of 1 659 000 ha, mainly in the Kuban area. The yield for 1930—35 (0.9 million t) was only a little less than that of the USSR and much more than that of any other country. 247

As a grain producing country, Ukraine, with its yield of approximately 25 million t of the four main European varieties (= 10 % of world production), took a leading place in the years before the First World War (1909—1931). It exported 7.9 million t, or 1/8 of total world grain exports, topping the list for wheat and barley (4.3 million t, and 20 % and 2.7 million t and 43 % respectively of world exports). In the years 1931—35, production in Ukraine decreased by only 9 % i. e. by 24.6 million t, world production amounting then to 276.6 million t, while the decrease in export trade in the same period was much greater. The reason for this was the small yield per hektar as well as inadequate cultivation in consequence of collectivisation and unfavorable conditions for selling agricultural and buying industrial products; in addition there was an increased demand at home as the country became more industrialised. 433 243

6. Cattle Rearing

The distribution of livestock in Ukraine varies considerably. In the wide spaces of North Caucasia there is much pasture-land so that there are not many cattle per unit of area, though quite a number per head of the population. 231 433 811

The opposite is true of Galicia where management is intensive. The many meadows of Polesya support good stocks of cattle while the mountain pastures of the Carpathians are not sufficiently utilised. Between those extremes we have the bulk of Ukrainian arable land with relatively poor supplies of fodder for cattle. The result is that Ukraine does not contribute to the cattle rearing industry of the world what one might expect from a country of its agricultural standing. Before World War I there were 13.5 million head of cattle in Ukraine, i. e. 2.8 % of world stock. The proportion of dairy cows in this figure increases continuously as the use of oxen for draught, which used to be a characteristic feature of the country, had been declining for some time. (Table 3).

313 being 13 % and 0.14 ha for the Right Bank Region and 7 % or 0.12 ha for the Left Bank Region. The southern zone has still less (0.08 ha per head) and there is practically none at all in the southern steppe proper.

[311] Thanks to its enormous area Ukraine with its 11 million ha of forest land comes fifth in Europe, but there is only 12 % of forest land in the entire country, and scarcely 0.2 ha per head of the population, while 0.3 ha is regarded as the minimum. The figures for actual forest stock will be still less, as only three quarters of the nominal forest land in Soviet Ukraine (3.1 million out of 4.3 million ha) represent actual forests. Thus the ratio of forest to the entire area of Ukraine would be 9 %. Forestry in those parts of Ukraine that used to belong to Austria-Hungary was on a higher level than in the other provinces; after the war it was highest in Carpatho-Ukraine.

313 The annual increment in timber in Dnipro-Ukraine amounts to 2 cubic meters per ha, in Volynia, Podlakhia and Polesya to 1.9 cubic metres, in Galicia and Carpatho-Ukraine to 3.3 cubic metres, so that the average figure for the entire country is 2.3 cubic metres. This average for Ukraine is low compared with the figure of 5 cubic meters for the state forests of Germany and 4.4 for the communal forests.

313 439 Reckoned per head of the population there is in Ukraine a timber increment of only 0.4 cubic meters, which is far lower than in most of the forest countries in Europe. As a result, wood has to be imported for mining and industrial areas.

Wood imports amounted to 1.8 million t in Dnipro-Ukraine in 1913, and the average figures for 1928/29 and 1933/34 are 3.7 and 4 million t respectively. The average imports to Northern Caucasia for the last year amounted to 1.2 million t, while the figure for the Crimea is 250 000 and for the whole of Eastern Ukraine 5.5 million t. The demand for timber is greatest in the Donets Basin, the Dnipro Bend and also in Kharkiv and Odessa.

Imports consist chiefly of soft woods; a certain amount of valuable oak is even exported from areas that are otherwise dependent on imports. In those parts of Ukraine that belong to Soviet Russia there is 0.16 ha forest per head of the population,

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Industry and Mining

1. Fundamental Facts

433 It lay in the nature of her situation as a colony of Russia that only those branches of industry in Ukraine were promoted which utilised raw materials that were locally abundant and difficult to transport over long distances. It was impossible, for instance, to develop a modern textile industry. Even if it cost twice as much to transport cotton from New York to Moscow via Murmansk as via Odessa and Kharkiv and even if the industrial area in Central Russia had to import coal from the Donets Basin, Ukraine was nevertheless dependent on Russia for manufactured goods.

433 311 464 Labor was originally more plentiful in Russia than in Ukraine. The population on the upper reaches of the Volga and the Oka was more apt to seek employment in trade and industry, as the soil in those areas yielded poorer harvests and the percentage of forest land was higher. In Ukraine, on the other hand, farmers were loth to leave the good Black Earth. And that is why it was long impossible there to make labor a decisive factor in placing industries. This could be done only much later in the larger towns, and even then it made little difference to the general trend. But it is characteristic for Ukraine that sources of raw material have determined the location of industry, coal-mines and hydro-electric works being geographically fixed and altogether there are more industries, the raw materials of which are more difficult to transport than their products. The proportion of plants whose location is determined by the presence of raw materials is three times higher in Ukraine than in the industrial states of Central and Western Europe.

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Table 8. Production of

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	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879
Donets Basin	256	330	595	617	573	842	957	801	1130	1253
Dombrowa Basin	330	301	298	336	402	408	423	612	1070	1085
Russian Empire	700	830	1100	1200	1300	1700	1900	1800	2500	2900
% of Donets Basin	37	41	54	52,5	44	49	50	44,5	45	43

	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
Donets Basin	3930	4850	4890	5110	6790	7570	9220	11*	10,9	10,7
Dombrowa Basin	3160	3350	3680	3660	3760	4090	3970	4,2	4,2	4,3
Russian Empire	7600	8800	9100	9400	11,3*	12,3	14	16,2	16,6	16,5
% of Donets Basin	52	55	53,5	54,5	60,5	61,5	66	68	65,5	65

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
Donets Basin	25,3	27,6	26,6	28,7	25	9	5,6	4,6	5,8	7,2	8,1
Kusnetsk Basin	0,8	0,9	1	1,2	1,1	0,9	0,9	0,9	0,8	0,9	0,8
Soviet Union	29,1	31,8	30,9	34,5	31,3	12	7,2	7,2	8,2	11,3	12,7
% of Donets Basin	87	87	86	83	80	75	78	64	70,5	63,5	64

* From 1900 in Million t total for Empire from 1897.

2. Branches and Areas of Industry

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The Donets Basin is the center of the heavy iron industry, heavy engineering, the non-ferrous industry and the production of chemicals on a large scale. The many electricity and overland generating plants that have sprung up almost contiguously utilise coal waste as a rule and have a considerable capacity, the largest being those at Shterivka and Zujivka with 150 000 KW each. There was a lively demand for machinery, above all for agricultural machinery, while the metal industry never reached the same level. Before World War I Ukraine contributed scarcely 17 % of all those employed in the manufacture of metal wares in Russia, though it supplied $^2/_3$ — $^3/_4$ of the raw materials required by the heavy iron industry throughout Russia. In 1934 the Ukrainian share in the manufacture of iron ore was constantly declining, so that metal goods of even fairly simple nature had to be imported.

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Coal in Donets Basin

1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892
1414	1495	1740	1758	1665	1883	2110	2060	2500	3110	3000	3140	3570
1285	1400	1400	1600	1665	1800	1990	2050	2420	2480	2470	2600	2890
3300	3500	3800	3900	3900	4300	4600	4600	5400	6200	6000	6200	7000
43	42,5	46	45	42,5	44	46	45	46,5	50	50	50,5	51

1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
11.6	13	12,9	14,2	18,2	17,9	17,7	16,7	19,9	21,4	25,3	27,6	26,6
4,8	4,8	3,6	4,6	5,4	5,6	5,7	5,5	5,8	6,4	6,9	3,8	—
17,9	19,6	18,7	21,7	26	25,9	26	24,9	28,4	31,1	36	35,6	30,9
65	66,5	69	65,5	70	69	68	67	70	69	70	78	86

1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
11.8	12,5	19,6	24,6	27,3	31	36,5	40,9	44	51	61,4	69,6	77,5	77,5
1	1	1,8	2,6	2,6	3	3,6	5,5	7,3	9,2	11,6	14,1	17,3	17,8
16,3	16,5	25,8	32,3	35,5	40	47,8	56,8	64,4	76,3	93,6	109	126	128
72,5	76	76	76	77	77,5	76,5	72	68,5	67	65,5	64	61,5	60,5

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The largest centers of production in the Donets Basin are Stalino, Makijivka, Kramatorska, Voroshylivhrad, Horlivka, Konstantynivka, Artemivske (Bakhmut), Slovianske etc. Mariupil is the exporting harbor.

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At the Dnipro Bend there are, among others, plants for best quality steel, ship-building yards, electro-technical factories and largescale chemical works. The gigantic power-station at Dnipropetrivske has a capacity of 558 000 KW. The main centers of production are Dnipropetrivske, Zaporizha, Dniprodshershinske, Kryvyj Rih and Nikopil. The exporting harbors are Mykolajiv and, for some products, Kherson.

The Donets Basin and the Dnipro Bend are frequently combined to-day and represent a many-sided economy on a wide basis of raw materials and power. As a combine it is contrasted with the Ural-Kusnetsk Combine (above all as regards coal and iron). Kerch with its ore mines and heavy industry gravitates towards the Donets Combine.

257 The central agrarian section of Ukraine, on both banks of
311 the Dnipro, includes industries producing foodstuffs and luxuries, above all the sugar industry. There are also plants here for manufacturing leather and medium-heavy machinery. Factories are much smaller than in the coal and ore area and the many small power-stations run on brown coal and peat.

381 The Carpathian area is the home above all of the chemical
311 industry and the capacity of the power-stations, usually run by gas and expensive imported coal, seldom by the abundant water power available, exceeds 10 000 KW only in Lviv — Uzhhorod, being used principally for lighting the towns. Industrialisation is densest on the oil-fields of Drohobych.

371 In the foreland of the Caucasus electric plants are run by
311 petroleum only and water power is not exploited at all. The small factories (petroleum, tobacco, leather and machinery of medium weight) are too scattered to form an industrial area in the strict sense.

392 The large towns form industrial centers that are not dependent
311 on the presence of raw materials. Kharkiv has heavy engineering plants for transportation requirements, factories for agricultural machinery, electro-technical factories, and workshops for precision instruments and machinery. These are large enterprises, built recently and attached to big power-stations (Chuhujiv 25 000 KW), so that Kharkiv may be classed with the industrial area in the vicinity.

39 Kyiv builds ships and produces chemical and electro-technical
311 equipment and has chemical and textile plants as well as sugar and foodstuffs factories. In Odessa the same factories are represented and there are also canneries, leather works and plants for producing cinema installations. In addition, there are workshops that specialise in the structure of motor-cars and planes. In the other towns in the country enterprises for this or that industry have been established.

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CHAPTER VII

THE ECONOMIC HISTORY OF THE UKRAINE

§1. AGRICULTURAL HISTORY OF THE UKRAINE

In the political mythology of the twentieth century the legend about 'the vast riches of the Ukraine' has played, and is destined to play, a certain part. In history the Ukraine will take place with the Route to the Indies, the North-West Passage, Golconda, the Empire of Prester John, and other phantasmagorias of the human mind which in their time have inspired the nations to the drama of effort and the tragedy of conflict. 437

In the modern world where generalization has displaced religion and where the generation made literate by popular education has thrown up 'Leaders' who are adepts in the exploitation of generalized ideas, it was inevitable that movements based on facile and false scientific, geographical and ethnical conceptions should become fashionable. 'The wheat-fields of the Ukraine' form a roseate hinterland to the Nordic Race and the Classless State in the dream-world of the masses of Central Europe. Apart, therefore, from the intrinsic interest of the subject, it becomes a matter of current importance to analyse the extent of the real resources of the Ukraine and their actual and potential relation to the economic problem of Europe.

There exists a widespread idea that the Ukraine was 'the granary of the Russian Empire', but in reality it would be difficult to indicate the period to which this idea could be applicable. Certainly, during the eighteenth century, as the Tartars and Turks were driven from the mouths of the Ukrainian rivers, a period of progressive prosperity set in. But under Alexander I, during the Napoleonic Wars, the bulk of the grain supply of the Empire was drawn from the southern regions of Central Russia—from the Governments of Orel, Kursk, Voronezh and Tambov. This source of supply was adequate in view of the numbers of the population at that period, and the state of the roads between the Black Sea provinces and Central Russia put a prohibitive cost on transportation from the south. 433 311

During the reigns of Alexander I and Nicholas I export abroad developed through Odessa and the Azov ports—Taganrog and 439

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439 Mariupol. The supply came from the big New Russian estates and from the German, Moldavian and Serb colonies founded in the eighteenth century. Towards the middle of the century the agricultural production of the Ukraine and the New Russian Governments began to form an important proportion of the general production of the Empire, but still these regions could not be called 'the granary of Russia' on account of the continuing lack of proper means of communication with the central provinces. The upper Dniepr and the upper course of the western Dvina were too shallow to serve adequately the needs of modern transport, and as late as the Crimean War the Russian railway system had not been extended south of Moscow.

496 The first important imperial trunk lines were constructed during the sixties and seventies: Moscow-Kursk-Kharkov-Rostov-on-the-Don (with branch lines from Kursk to Kiev and from Kharkov to the Crimea); Moscow-Voronezh-Rostov-on-the-Don (with extensions to the northern Caucasus); Petersburg–Vilna-Rovno-Kiev-Odessa; Kharkov-Kremenchug (on the Dniepr)–Nikolaev. Railway construction had taken the 'meridial' direction: the economic axis of the Empire during the three decades 1860–90 ran from 'the industrial north' to 'the agricultural south'.

The new railway system improved the conditions for the export of Ukrainian and New Russian grain through the Black Sea ports. At the same time access to the north was provided by the railway 'diagonal' connecting Orel (on the Moscow-Kursk line) with Riga: this 'diagonal' continued to the south-east through the northern part of the Don region to Tsaritsyn on the lower Volga. Further, a special 'grain line' linked the Ukraine with the Baltic: starting from Kremenchug on the Dniepr, it passed through the Governments of Poltava and Chernigov, White Russia and Lithuania to the new ice-free port of Libava (Libau).

●311 It thus began to appear that the Ukrainian and New Russian provinces were indeed to become the granary of the Russian Empire. But the colossal economic potentialities of the outlying [496] quarters of the Empire, which began to come into development during the second half of the nineteenth century, very soon overwhelmed this comparatively modest conception. In the seventies the first 'latitudinal' railway threw a bridge across the Volga at Samara and was continued as far as the southern Urals. The steppes beyond the Volga offered immense new space for agricultural exploitation. In the meantime the conquest of the Caucasus had been completed, and the rapid expansion of the economic life of the Kuban and Terek regions had begun. Soil conditions in the northern

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Caucasus were not inferior to those of New Russia and climatic conditions were much more favourable: rainfall, owing to the proximity of the great Caucasian ranges, was more regular. The Kuban region did actually become a granary. Rostov-on-the-Don grew and flourished in true 'American style'. A new grain port, Novorossiysk, was built and soon became a rival to Odessa.

Further railway development accompanied the exploitation of the Donets coal-mines and the growth of a metallurgical industry centred on the Krivoy Rog iron-ore deposits located to the west of the Dniepr. Two parallel lines were constructed to pass through Ekaterinoslav and the old district of the Zaporogian *Sech*, connecting the Donets basin with Krivoy Rog. Thus, simultaneously with the industrial development in the south and the flowering of the North Caucasian region, a new 'granary' and new regions of great mineral potential began at the turn of the century to impose a 'latitudinal' direction on railway construction: the opening of the great Siberian railway gave almost a priority to the possibilities of agricultural production in western and southern Siberia, and connected Chelyabinsk, through Ekaterinenburg, Vyatka and Vologda, with the Baltic ports. At the same time 'diagonal' development was proceeding far to the south-east through Turkestan to the frontiers of Afghanistan and the Chinese Empire.

The importance of the natural riches of Asiatic Russia came to be realized with an ever-growing force during the reign of Nicholas II (1896–1917). The principal economic axis of the Empire was evidently changing direction from the 'meridial' to the 'latitudinal'. The political policy of the Empire during the same period, with its emphasis on the Balkan Slavs and on the 'Byzantine' dreams of the epoch of Catherine II, was certainly archaistic in tendency and bore no relation to the fundamental realities of Eurasian geography.

The War of 1914–18 brought down in destruction that peculiarly hybrid cultural synthesis which was Romanov Russia; it obliterated at the same time the neo-Byzantine plans of the Pan-Slavists and weakened the whole position of Russia as a European power. The loss of a wide belt of territories (the whole inheritance of two hundred years of Romanov autocracy) between the Arctic and the Black Sea imposed on the new Soviet state the sheer necessity of a 'latitudinal' rather than a 'meridial' development. During the last two decades new efforts have been made to open up the agricultural and mineral wealth of the steppes beyond the Volga and the Ural in western and southern Siberia and of the valleys of the Altai and the Tien-Shan; and, while historic Russian ambitions in the Balkans

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and the Middle East have been left in suspense, a territory the size of Europe and new routes into the heart of China and ultimately to the Pacific have been brought under Soviet control. Under these circumstances 'the wheat-fields of the Ukraine' receded again into the background and became of only local importance: the more so since, in the two Soviet 'Economic Plans', interest in South-Eastern Russia has been concentrated on the industrial development of the New Russian region. These conditions are illustrated by the growth of industrial centres like Kharkov, Ekaterinoslav, Lugansk, Zaporozhie, and the decline of the great grain port of Odessa.

The agricultural wealth of the Ukraine has never in fact justified the enthusiasm which it has inspired from the time of the seventeenth-century Polish poet quoted in an earlier context to the more recent period of Herr Hitler and his apostles of *Lebensraum*. The natural conditions of the Ukraine are such that they really generously reward agricultural labour, but they exact always patient, strenuous and systematic toil.

Natural conditions differ greatly over the expanse of the country which Michael Dragomanov considered to constitute 'Greater Ukraine'. The agricultural 'age' of these territories differs in the extreme. In New Russia agriculture is only a century old, while Galicia has supported a numerous population of husbandmen for nearly a thousand years.

Galicia is one of the oldest agricultural lands of all Europe and conditions there have hardly altered since the days of Daniel and his *boyars*. The Galician earth, black in the eastern part, is tired old soil, impoverished by incessant labour, itself prompted and intensified by the ever-growing care of an ever-growing population to acquire its daily bread. Owing to the density of the population (110, and in some regions 132, inhabitants to the square kilometre) the area of holdings had been reduced to a minimum: 46 per cent of the farms comprise 2 hectares of land and sometimes less; 37 per cent comprise from 2 to 5 hectares. In a countryside where urban life has remained relatively stagnant live 75 per cent of the total population; while all commerce and crafts remain in the hands of the Jews in the large towns and in many of the villages, there is a 50 per cent surplus of hands among agricultural labourers. The peasants, Poles and Ukrainians alike, used to migrate to Germany and France as casual labour; before the last war they emigrated also in large numbers to Canada and the United States.

These arduous conditions of peasant life gradually developed a capacity for organization. Driven by necessity, the Galician peasantry set up a network of co-operatives for production and

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distribution. These co-operatives formed the basis of a certain national unity which found expression in the political field.

Volhynia, partitioned after the war of 1920 between the Poles and the Soviets, is nearly as old an agricultural country as Galicia. Here the strips of rich black earth alternate with sandy and wooded country. Although density of population is not so great as in Galicia, poverty is perhaps even greater, owing to a lack of that capacity for organization which helps the Galician labourers to survive. The large estates of the Polish nobility have long disappeared; after the last war the Polish Government divided up the land. Numerous strips were allotted to Polish soldiers on the expiration of their service—with the intention of strengthening the Polish ethnic and cultural element in the region. The disappearance of the large estates, as in Transylvania and Roumania, had a deleterious effect on agricultural production and on the proper exploitation of the forests. The majority of the people lead a half-starved existence, and the young men dream of emigration to South America. In 1937, 25 per cent of the population of Polish Volhynia had neither bread nor wood.

Podolia has been a land of cultivation since the Middle Ages, although the soil was broken up two or three hundred years later than in Galicia and Volhynia. Now, as before the period of war and revolution (1914–20), Podolia remains in a close economic relationship to the other parts of the Ukraine. The black earth of this favoured province is really fruitful and well watered by numerous small rivers; climatic conditions are better than anywhere throughout the Ukraine—rain is plentiful and regular and the winters are short. It was probably the fields and pastures, the hillocks and woods of Podolia which the Polish poet had in mind when he wrote lyrically of 'the birthplace of Ceres and Diana'. Horticulture and apiculture have long flourished there.

In the past social conditions varied with the political situation according to whether the small landowners (Ukrainian Cossacks) or the Polish landlords were in the ascendant. During the eighteenth century Polish elements had the upper hand and for some time Podolia remained the last refuge of the Polish aristocracy. Polish social influences survived the Three Partitions, and it was only after the Polish Insurrection of 1830 that conditions began to change in favour of the Russian majority in the population.

Towards the middle of the nineteenth century this rich land with its soft climate had become very densely populated. By the end of the century Podolia ranked second in density of population of all the regions of the Russian Empire. The Government of Moscow took

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first place, but in its population was included the million inhabitants of the second capital of the Empire, while in Podolia there was no single town which numbered more than fifty thousand inhabitants. Density of population in Podolia reached the figure of 100 to the square kilometre, but the province was saved from the problems of over-population by the development of the large estates on capitalist lines. This process began about 1830 and developed on a large scale after 1870. The beet-sugar industry with its subsidiary alcoholic distilleries, flour mills and horticulture provided a variety of livelihood for a population which by 1897 had attained to nearly four and a half millions. Between the years 1896 and 1933 more than a million and a half peasants migrated from other districts of the Ukraine to Siberia and the steppes beyond the Volga, but in Podolia emigration was scarcely perceptible.

The southern part of the Government of Kiev along the right bank of the Dniepr enjoyed conditions somewhat similar to those in Podolia, while the northern districts resembled rather Volhynia. In the south a rich black earth supported a number of large estates where the beet-sugar industry, distilleries and mills flourished. In these southern districts were many well-to-do peasant farms covering up to 20 and 30 hectares apiece. Wheat was grown in sufficient quantities to satisfy local needs and to supply the six hundred thousand inhabitants of the city of Kiev. At the beginning of the century the population of the Government of Kiev amounted to over four and a half millions. At that time the three Governments of right-bank Ukraine (Kiev, Podolia, Volhynia) contained fourteen million inhabitants with an average density of 70–80 people per square kilometre. Such numbers were quite 'European' in their proportions and should have tended to discourage those Western dreamers who were even then casting envious eyes on the 'vacant lands' of the Ukraine.

It was almost equally difficult to discover 'vacant lands' in the Governments of *left-bank Ukraine*. In Poltava, Chernigov and Kharkov the density of population amounted to 60–70 people per square kilometre. The uninterrupted belt of black earth in the Governments of Poltava and Chernigov had been under the plough only since the seventeenth century—and many parts of it not before the eighteenth century. This was the land of which Alexey Tolstoy wrote: 'Know ye the land where all breathes plenty and content, where rivers flow as silver clear.' There were scarcely any towns of importance in this rural elysium. The characteristics of the Government of Kharkov, on the other hand, were quite distinct from those of the two adjoining left-bank provinces: in the north-west,

4: Allen H-4 (no date) 1941 RD1 Ukraine RD1

Kharkov, in its scenery and social conditions, resembles rather the neighbouring districts of the Government of Kursk, while in the south-east it is already really part of New Russia.

Climatic conditions on the left bank are rather less favourable than on the right bank of the Dniepr: there is a lighter rainfall which is not so evenly distributed; the winters are more severe and the region of Kharkov endures a distinctly 'continental' climate. Prince Shcherbatov, a former minister of the Imperial Government, writes that: 'One of the most important factors in agriculture is rainfall, which does not always occur under favourable conditions in the Ukraine. Most of the rain comes in summer and often takes the form of downpours which impede work in the fields and harvesting; and in the spring there is often not enough rain. Rainfall is better distributed on the right bank of the Dniepr than in other parts. The difficult climatic conditions in the Ukraine liken the average black earth harvests to average harvests in Central Europe on an average soil.'

During the nineteenth century conditions in left-bank Ukraine tended to favour the growth of a prosperous class of small farmers who supplanted the big landowners of the period of Peter I and Catherine II. These conditions derived from the shortage of labour on big estates which followed the opening up of the New Russian territories and from the wave of speculation which induced landowners to sell out their properties on the left bank of the Dniepr in order to participate in 'the rush' for the new lands. Left-bank Ukraine became a country of large peasant farms covering 10, 20, 30 and as much as 50 hectares, while a number of smaller 'working' landowners retained estates up to 100, 150 and 200 hectares. Land was worth in these parts 500 rubles (about £50 sterling on the pre-war exchange) a hectare.

At the same time the growth of these large farms in the Governments of left-bank Ukraine combined with a natural increase in the population to create a serious problem of 'over-crowding'. In the eighteenth century a numerous class of peasantry had existed who did not own any land of their own at all, but who merely possessed cottages and vegetable gardens and the right to graze their stock on common pasture lands. Following the Emancipation of the Serfs in 1861, the number of landless peasants showed a rapid increase. The small parcels of land allotted to the liberated serfs were soon redistributed between the thrifty and the shiftless; and the division of large estates did not contribute to the establishment of agricultural industries which might have provided a living for the less fortunate. Already in the eighties symptoms of over-population were noticeable

4: Allen H-4 (no date) 1941 RD1 Ukraine RD1

166 ALREADY IN THE EIGHTIES SYMPTOMS OF OVER-POPULATION WERE NOTICEABLE
in the Governments of Poltava and Chernigov. The peasants continued to move on into New Russia, but by this time that region was itself becoming fairly thickly populated. Migrants pursued their way to the newer lands in the northern Caucasus and beyond the Volga. From 1890 onwards the Government took a hand in the organization of this migratory movement. According to the Emigration Department, set up at this period, the greatest number of migrants over the whole Empire came from the 'rich black earth regions' of Poltava, Chernigov, Kursk and Kharkov. However, between the years 1907 and 1913, the Poltava and Chernigov Governments, from being first and second in this respect, ranked only third and fifth. This fact is explained by the initiative of important landowners and industrialists like Kharitonenko, Tereshchenko and others who built up the sugar-beet industry on a large scale. Notwithstanding this factor, between 1906 and 1914, according to the statistics of the *Ukrainian Encyclopaedia*, 1,610,000 peasants migrated from the Ukrainian Governments, while migration was also taking place from different districts of New Russia. The Ukrainians mostly went to settle the steppe area in western Siberia and the region of Orenburg; others reached the Amur and the shores of the Pacific Ocean, where the Ukrainian settlements came to be known as the Green Wedge (*Zelëny Klin*) and where the names of the wealthy villages of Novo-Kievskoe, Poltavskoe and Chernigovskoe piously recalled the origin of those who had come from the banks of the Dniepr and the Seym.

311 433 At the beginning of the twentieth century the classical 'three-field system', already prescribed as a law in the Lithuanian Statute of the sixteenth century, prevailed in left-bank Ukraine. This system answered the requirements of the small landowner or well-to-do peasant who farmed 20 to 100 hectares. Few troubled to produce more than a small surplus, the sale of which might cover their current wants. Horticulture, apiculture and some stock-raising served to supplement income. On the larger estates all the energies of the owners were directed to the lucrative exploitation of the sugar-beet industry. Stretches of land were bought or leased from peasants or small landowners in order to increase the acreage under beet. The rapid development and excellent management of the sugar-beet industry impressed and disturbed the German Commission of Professor Auhagen in 1912. By this time the industry had assumed a certain international importance. In 1914 433 there were over 190 sugar factories in the Ukraine out of 226 for the 244 whole Empire (the bulk of the balance was produced in Poland). As against 2 million hectares under wheat in the Ukraine (excluding

4: Allen H-4 (no date) 1941 RD1 Ukraine RD1

western Siberia, the Altai and the Far East. The execution of Stalin's commands is to be completed by September 1940. It is not to be anticipated that the acute conditions of 1929–34 will be repeated as a result of this new drive against the human nature of the Russian rural masses: the Communist machine has broken the strength of peasant society. At the same time, there is little doubt that the harvest of 1939–40 will not be as abundant as those of 1936–8.

The influence of the Revolution and of the Soviet régime on forestry in the South of Russia has been no less baleful than on other branches of rural industry. At the end of the nineteenth century woods covered 20 per cent of the whole area of the Ukraine; in 1928, according to the most optimistic estimates of Soviet statisticians, they did not occupy more than 7 per cent. Even in such a 'half-steppe' region as Poltava, owing to the care of the Imperial Government and of large landowners, woods had covered 10 per cent of the total area. 'Destruction of forests is one of the greatest evils because it is followed by the formation of deep ravines which drain the district of underground waters. The consequence of the formation of such ravines is that streams carry away valuable soil to the rivers and the sea. Every year thousands of hectares of good black earth are lost to the labourer and only serve to make the Dniepr and its affluents more shallow. The destruction of forests, the formation of ravines, the drying up of underground waters, threaten the future of the Ukraine with the gravest consequences.'

The Soviet Government is well aware of the dark side of its 'achievement' in the agricultural life of the South of Russia. But, as is well known, the Soviet leaders intend to effect a radical change in the balance of productive forces within the Union. Their reasons for this intention are both political and ideological: political because they realize that their dictatorship rests upon the industrial proletariat and has always aroused the antagonism of the peasants; ideological because they are the apostles of the mechanistic conception of life and, hypnotized by the material achievements of the capitalist world, they ape it in their attempt to transform it and can seek nothing more profound than the realization of Stalin's dream 'to catch up and surpass America'.

In 1913 the relation of agricultural to industrial production in Russia was 59·4 to 40·6. Under the original Five Year Plan formulated in 1928 the Soviets aimed at the attainment of a balance which should allocate 80·2 to industry and only 19·8 to agriculture. This fantastic aim was based obviously on the possibilities of bringing into exploitation the vast mineral resources which were known to lie under the soil of the Soviet Union. And all the political ruthless-

6: Armstrong S-4 (no date) 1955 RD1 Ukraine RD1

p 130

VI. FROM UNDERGROUND TO RESISTANCE

133 For groups carrying on open resistance to an occupying power, the Ukraine as a whole is a highly inhospitable region; throughout most of its extent it is an open plain without natural places of concealment. Aside from the mountainous areas of the Carpathians in Galicia, the Carpatho-Ukraine, and Bukovina, which remained for a long time outside the scope of open resistance activities, sheltered retreats for bands of any considerable size are difficult to find. They are limited almost entirely to the belt of woods and swamp on the northern border. Originally, forest vegetation prevailed north of a line reaching from a point on the Polish border not far to the southwest of Kremenets almost due east, through Zhitomir and Kiev, to the boundary of the Ukraine and the Russian Soviet Republic some fifty miles northwest of
● [311] Sumy.[1] In the course of the centuries, a large part of this region has been cleared for cultivation; the presence of numerous swampy areas prevented all the forest from being cut down, however, so that there are frequent wooded areas, which become more common and less separated by open spaces the farther north one goes. In the Ukraine, as it was administratively defined prior to 1941, this wooded strip rarely exceeds one hundred miles in width, although it is almost four hundred miles long. The Reichskommissariat Ukraine, however, included an additional strip annexed from Belorussia, averaging about forty miles in width, and containing still more impenetrable swamps than the more southerly wooded area. Of the forested region, the southern part, which has been partly cleared, is valuable agriculturally and is thickly settled; it forms an integral part of the

[1] Cf. *Entsyklopediia Ukrainoznastva* (Encyclopedia of Things Ukrainian), eds. Volodymyr Kubiiovych and Zenon Kuzelia (Munich: Naukove Tovarystvo im. Shevchenka, 1949), p. 106.

7:Bregy & Obolensky H-4, 5 (no date) 1940 RD1 Ukraine RD1

563 and the Greeks who competed with the merchant Jews in the great ports, where they formed very united and wealthy autonomous communities which to-day have been repatriated or dispersed.

II

Agriculture

241 Fundamentally an agricultural land, the Ukraine is particularly the land of cereals.

The incomparable richness of these lands, her temperate climate, and the aptitude of her population have made this branch of human activity the fundamental wealth of the country.

134 With the exception of the forest regions of the north-
311 west, where sandy soil is met, nearly all the lands of the Ukraine are arable and actually only a few tens of thousands of hectares of waste land remain, which serve as natural pasturages and give an excellent hay which is very well suited for horses.

243 About 25,000,000 hectares are sown, of which 20,000,000 are growing cereals.

The abundance of nitrates in the surface layer of the earth, and its capillary structure, perfect for irrigation, allow the cultivation of the most valuable of cereals—
[311] wheat. The area that has been sown with this cereal occupies more than 35 per cent of the worked land of the Ukraine and its production rises to 90,000,000 quintals, representing almost 8 per cent of the world harvest and 18 per cent of the European harvest.

The cultivation of wheat seems to develop from year to year at the expense of barley and of rye, cereals of inferior quality.

From the end of the nineteenth century wheat has

alleviate these conditions various measures have been adopted, such as the easement or complete extinguishing of the burden of the purchase-price of the *nadyel*, the prevention of its frequent redistribution, and the founding of the Peasants' Land Bank by the State to facilitate further purchases of land by the communes. Nevertheless, a result not looked for by the framers of the law abolishing serfdom has followed, namely the creation of a large landless agricultural proletariat, which tends to sink in the social scale, to live partly by industry in the towns, and to be migratory in its habits.

The law of 1906 introduced for the first time the general principle of individual and permanent ownership of *nadyel* lands. It aimed at the breaking up of the *mirs* as no longer fulfilling a need, in the expectation that security of tenure by the individual would lead to a more rational and successful system of cultivation. The period since the promulgation of the law is too short to allow of sound conclusions as to its effect.

The *nadyel* lands are almost entirely cultivated on the three-field system, each unit of land being planted one year with a winter-sown grain, the following year with a spring-sown grain, and lying fallow in the third year. This method causes a disastrous impoverishment of the land, especially as in many cases the minimum of manure, whether animal or chemical, is used. An alternative method must be introduced, or the productiveness of the black-soil land under peasant ownership will continue to shrink as heretofore.

The land held by private owners is in general their perpetual freehold, and can be roughly divided into that held by the nobility in large estates and the smaller holdings purchased from them since the abolition of serfdom by prosperous peasants and others desirous of embarking on agriculture on their own account. There are also a number of foreign colonists, chiefly Germans, descendants of those introduced into the country

425 by the Government at various times between the middle of the eighteenth century and 1861, in the hope that their superior methods of agriculture would be copied by other cultivators. This effect, however, was not produced, and the colonists form compact communities with little or no influence on their neighbours. Land in private ownership is usually farmed on more modern [241] and rational principles than the *nadyel* land, and produces almost the entire surplus of cereals which is sent abroad and to other parts of Russia.

421 The land owned by the Church, Crown, and members of the Imperial family is absolute freehold, and is generally well managed and productively farmed.

407 412 Up-to-date agricultural machinery is becoming more common all round. It is of course most in vogue on the large estates, especially in the case of expensive machines involving the use of power; steam-ploughs on the cable system are much in use on the large sugar-beet estates, and tractor ploughs with single engines are becoming numerous. By the help and enterprise of the *zemstvos* the peasants are now beginning to use modern machines and implements. The traditional *sock* or wooden plough, the flail, and other such primitive tools are disappearing, although it is hard to induce the peasant to abandon his old methods.

(c) *Forestry*

137 [311] A large portion of the Ukraine is totally denuded of trees at the present time. The Governments of Podolia and Volhynia, and the northern parts of Kiev and Chernigov, are well wooded, the area covered by forest being about 15 per cent. of the whole. In the remaining provinces the forest area averages 3–4 per cent. of the total. The State controls certain areas north of Kiev on both banks of the Dnieper, and in Volhynia on the south side of the Pripet marshes, as well as smaller scattered tracts in Podolia. In the Government of Yekaterinoslav the State has lately done much

[Podolia] [Volhynia]

everyone else from among our ranks. 000

Before the First World War it was said of 101
Podolia, which you will reach if you wander farther 181
north and which lies like a plateau over the Dniestr 311
Valley, that bread grows on fence posts there, [000]
/Facing page 16: Kiev, the capital of Ukraine. View of the lower part of the city/; /Facing page 17: The old fortress of Feodosiya on the Crimea/ /17/ and that the fences are woven out of sausages. For the first time there lies before you an immeasurable sea of surging grain. Not a house far and wide, rarely a small wood. A groundless, dusty field road, surprisingly seems to lead into empty space, but where you think it ends, it leads you straight as a die, by means of steep turns into one of those deep valleys which the rivers in the course of thousands of years have carved into the plateaus. Down there the Podolians build their loam huts, the whitewashed walls of which have already greeted you from a distance through the green of the plum and cherry trees. If you follow the river upstream, it will more and more often lead you around ponds, marshes and swamps the nearer you come to its sources. You will see more storks than you have ever seen before in your life.

Almost imperceptibly you will reach Volhynia, 101
the western part of which belonged to Poland up to 491
1939, but was subject to the czar before that. You 361
will notice this immediately by the lack of good roads. For, as everywhere in former Czarist Russia, there are only a few paved roads, but all the more are there roads on which in dry weather you sink into the dust and in wet weather into mud. You will 361
notice it also by the cities and towns which are even dirtier and more neglected than those of Galicia. You are in the midst of the ghettos of the world. These cities are a jumble of houses, "with an ugly traffic artery in the middle". They are spread out with a total absence of form, as though they had been

[For photos, cf. pp. 215-216, category 116 — Analyst]

Moldavia

635 648 The Moldavian Soviet Socialist Republic was created on August 2, 1940 by the decree of the Supreme Soviet of U.S.S.R. This Republic consists of a part of the former Moldavian Autonomous S.S. Republic and of a section of Bessarabia incorporated into the Soviet Union. [131 161] The creation of this new Union Republic decreased the Ukrainian S.S.R. by 3,900 square kilometres and a population of 310,000 persons[1].

The Transcarpathian Ukraine[2]

928 In June 1945 an agreement was signed in Moscow between the governments of the U.S.S.R. and the Czechoslovak Republic that the Transcarpathian Ukraine "...which on the basis of a pact of September 10, 1919, concluded at St.Germain-en-Laye, entered the Czechoslovak Republic with the rank of an Autonomous Republic, will, according to the wish manifested by the population of the Carpatho-Ukraine and on the basis of the friendly agreement of both high contracting parties, unite with its longstanding motherland, the Ukraine, and is included in the Ukrainian Soviet Socialist Republic. The frontier between Slovakia and the Carpatho-Ukraine, existing since September 29, 1938, will, with modifications described, become the frontier between the U.S.S.R. and the Czechoslovak Republic..."

Article II of the protocol appended to the Pact said that:

"Persons of Ukrainian and Russian nationality living in Czechoslovak territory have the right to opt for Soviet citizenship until January 1, 1946... Czech and Slovak nationals residing or having their permanent domicile in the territory of the Carpatho-Ukraine have the right to opt for Czechoslovak nationality during the time until January 1, 1946".[3]

131 311 On January 1, 1935, the area of the Transcarpathian Ukraine was 12,617 square kilometres. In 1937 about half of this was covered by forests and woods; roughly 239,000 hectares were arable, and about 328,000 hectares were devoted to vineyards, market gardens, and permanent meadows and pastures.

161 As at December 1, 1930, the population of the Transcarpathian Ukraine was 725,357, an increase of nearly 121,000 over February 1921.[4]

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1 Territory and Population of the U.S.S.R., S.Sulkevich, Moscow, 1940.

2 Called by the Czechs, Sub-Carpathian Rus, or Carpatho-Ukraine.

3 New York Times quoted by Voices of History (1945-46), Gramercy Publishing Company, New York.

4 Statistical Handbook of Czechoslovak Republic, London.

311 241 [407] [475] Despite a certain reduction in the area under cultivation in the Ukraine, (25,124,900 hectares in 1937 as compared with 26,438,400 in 1932), production rose considerably, reflecting great progress in the mechanization of agriculture. The number of tractors increased from 51,300 in 1932 to 83,900 in 1937. The number of harvesting combines increased in the same period from 4,900 to 26,700. The number of Machine and Tractor Stations grew from 657 to 958. The mechanization of agriculture in the Ukrainian S.S.R. is shown in the following table, which compares the output of energy from draught animals with the energy derived from machines, both in the Ukrainian Republic and in the entire Soviet Union. (It should be noted that, according to Soviet practice, the output of energy is measured in kilowatt hours.)

TABLE V

Output of Energy in Agriculture, 1938
(million kwh)

	Ukrainian S.S.R.	Total Soviet Union
[407] Energy from machines	4,211	19,304.2
379 Energy from draught cattle	1,662	14,667.5
Total output of energy in agriculture	5,873	33,971.7

Source : Planned Economy XII, Moscow, 1940.

[178] As the table shows, the percentage of mechanization in the Ukraine was greater than in the entire Soviet Union.

Agricultural Development of the Incorporated Territories

311 425 723 According to the Concise Yearbook of Poland, London, 1941, there were in 1938 over four million hectares of arable land and 190,000 hectares of orchards and market gardens in Western Ukraine. The principal crops grown were wheat, rye, barley, oats, potatoes, and sugar beet.

Before 1939 farming in Western Ukraine was carried out on a very primitive level. After the incorporation of this region into the Ukrainian Republic, however, great changes were made. On October 28, 1939, the People's Assembly of Western Ukraine decreed the confiscation of large land estates, and subsequently, according to the Moscow periodical, Soviet State and Law (1941-III), over one million hectares were distributed among 400,000 landless farm workers and small holders. Similar changes occurred in the other incorporated territories. In the northern part of Bukovina, (in the Chernovitsy Province joined to the Ukraine) 200,000 hectares were distributed among landless workers, while in the Ismail (former Akkerman) Province, Bessarabia, 65,000 hectares were divided.

474 241 178 Apart from the confiscation of large estates and the re-distribution of the land, two further processes could be observed in these areas from the time of their incorporation until Germany attacked the U.S.S.R.: the organization of peasant holdings into collective farms, and the increased mechanization of agriculture. By September 1940 there were 400 collective farms in Western Ukraine; by January 1, 1941, the number had increased to 571, in which there were organized 34,000 peasant farm holdings. (These numbers do not include 535 "initiative" groups for the creation of collective farms with 14,000 peasant farm holdings.) In Northern Bukovina (according to the same source Soviet State and Law, 1941-III) the first seven collective farms with 3,000 hectares were also founded.

475 407 Mechanization also advanced rapidly. In the western part of the Ukraine 170 Machine and Tractor Stations were established in the first year of incorporation into the Republic. In 1941 in the Ismail Province, 27 Machine Tractor Stations were being built, and in the Chernovitsy Province, 13.

475 407 652 In the Transcarpathian region (incorporated into the Ukraine in June, 1945), nine Machine and Tractor Stations were established in 1946 to assist the work of the fields. The Five-Year Plan 1946-50 provides for special attention to the farms of Transcarpathian Ukraine in the form of machines, fertilizers and credits to increase agricultural production in this region, the pre-war output of which was as follows.

SU The State Farms (sovkhozes)

495 After the revolution, when the large holdings were broken up, a
242 certain number of well-organized estates were preserved as model agricultural stations. These were subsequently turned into State Farms (sovkhozes), the purposes of which was to experiment with seed selection, plant and livestock breeding, fertilizers, etc. The sovkhozes, operating with hired labour, turned over to the government all their production above the requirements of the sovkhoz workers.

SU

[407] To an even greater extent than the collective farms the State Farms were mechanized. They had the best technical equipment and, compared with the kolkhozes, twice the concentration of tractors per hectare. The sovkhoz workers received wages at specially worked out rates: they had the use of living quarters, dining rooms, and educational and entertainment facilities.

SU

[433] The State Farms achieved good results in raising production, both of grain and of industrial crops.

SU

474 However, the basic form of agricultural organization in the U.S.S.R.
475 continued to be the collective farms, which supplied the bulk of food
311 and agricultural raw materials for industry.

372 At the beginning of the third Five Year Plan (1938), there were in the Soviet Union 242,000 collective farms (kolkhozes) embracing 91 per cent. of all the land under cultivation. The kolkhozes had 117.2 million hectares of arable land; the 3,960 State Farms (sovkhozes) had 12.4 million hectares;[1] and 1.5 million individual farmers had 900,000 hectares of arable land.[2]

U

Collective Farms in the Ukraine

474 In 1938 the Ukraine contained almost one-ninth of the collective
311 farms in the Soviet Union (27,393 out of 242,392). The total area
433 occupied by the Ukrainian kolkhozes was 34.9 million hectares, of which about 61 per cent. was under cultivation. Like the kolkhozes in other Republics, the Ukrainian collectives made giant strides in the years between 1932-38: they increased in number, from 25,000 to 27,393; they increased their area of cultivation from 18.9 million to 21.4 million hectares;[3] but the greatest increase was in productivity, as the following table shows.

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1 Although the area of the sovkhozes extended to 68 million hectares, the sown acreage amounted to only 12.4 million hectares.

2 The Socialist Agricultural Economy of the U.S.S.R., Moscow, 1939

3 In the Ukraine as a whole, however, the cultivated area declined from 26.4 million hectares in 1932 to 25.6 million in 1938.

17: UNRRA G-4 (no date) 1947 RD1 Ukraine RD1

TABLE VII

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Average Yields of Grain on Ukrainian Collective Farms
(metric tons per hectare)

	Ukraine Average pre-world war I 1901-13	Ukrainian Collectives Average 1932-34	1937-39	1939
Winter rye	0.98	0.83	1.20	1.15
Winter wheat	1.04	0.93	1.43	1.59
Summer wheat	0.70	0.73	0.76	1.03
Summer barley	0.93	0.93	1.26	1.52
Oats	1.07	0.87	1.12	1.23
Millet	0.99	0.61	1.0	1.16
Buckwheat	0.68	0.50	0.58	1.50
Maize	1.11	0.93	1.5	1.57
Average all grains	0.91	0.85	1.23	1.36

Source: Speech delivered by N. Kruschev[1], Secretary General of the Communist Party of the Ukraine, cited in Agriculture in 1940, A. Mortunov, Planned Economy, Moscow, 1940/II.

In the entire Soviet Union the average yield of grain crops increased from 0.7 tons per hectare in 1930 to 0.97 tons per hectare in 1938.

The development of agriculture in the collective farms of the Ukrainian S.S.R. from 1934-38 is further illustrated by the following table, which shows the area under cultivation, yield per hectare and gross output of the principal crops in 1938, all in percentages of 1934.

1 Now Premier of the Ukrainian S.S.R.

17: UNRRA G-4 (no date) 1947 RD1 Ukraine RD1
Soviet Union R1

TABLE VIII

U 474 0311 433 241

Productivity of Ukrainian Collective Farms in 1938
(expressed in percentage of 1934)

	Area under cultivation	Yield per hectare	Gross output
Grain	88.0	176.0	157
Sugar beet	98.0	164.0	161
Sunflower	85.0	208.0	171
Flax	126.0	140.0	290
Cotton	146.0	671.0	986

Source: J. Shtsenko "Productivity of Work in Collective Farms in the Ukrainian S.S.R." Planned Economy, Moscow, 1940/I.

As the table shows, the area under cultivation of grain, sugar beet, and sunflowers decreased somewhat; however, average yields per hectare and total production were increased by 75 to 100 per cent. This increase in productivity was brought about by improved cultivation methods: the use of selected seeds, chemical fertilizers, more scientific crop rotation and above all, by the greater mechanization of labour. As we have seen, the Ukraine had in 1938 nearly a thousand Machine and Tractor Stations, as compared with 657 in 1932. The effect of mechanization in the collectives is best shown by the fact that whereas in 1932 the M.T.S. cultivated 77.1 per cent. of the arable area of the Ukrainian kolkhozes, by 1937 they were serving 98.8 per cent. of the collectives' entire arable land.

SU 241 433

Since 1938 (the last year in which comprehensive agricultural statistics for the U.S.S.R. were published) there has been little information available about agricultural production in the Soviet Union. The figures which have been made public emerge from press or conference reports, and the information is usually very scanty. The immediate pre-war picture is therefore not clear.

We do have, however, the planned 1941 area of cultivation in the U.S.S.R., as well as the percentage of increase over 1940. From these figures we can estimate the sown areas in 1940, as the following tables show.

433 As the table shows, the Ukrainian people received in 1945 only 4
262 to 5 kilograms of fats - 8 to 18 kilograms less than their pre-war
388 annual consumption rate.

Disaster in 1946

433 Early in 1946 other UNRRA supplies in addition to food began to
241 arrive - seeds, small quantities of fertilizers, and a few farm tools.
648 Throughout the Ukraine great efforts were being made for a successful spring sowing. However, there were still shortages of seeds, fertilizers, implements, and machinery. None of the 1,600 tractors promised by UNRRA had arrived. Much of the work was still being done by hand, especially where no draught animals were available.

●[311] Even despite these drawbacks, it is estimated that about 80 per cent. of the pre-war area was sown; but no figures are available on the acreage planted to individual crops. In April 1946 the UNRRA Mission, describing the difficulties in getting detailed agricultural statistics, stated:

> "...During a recent inspection trip we were informed by the agricultural authorities of the Poltava oblast,[1] one of the best agricultural regions in the Ukraine, that they did not even try to set production goals for their collective farms this year (1946); they simply told each farm to plant as much as possible of whatever crops it could raise with the seed, equipment, draught animals, and manpower available. (For example) We believe that nobody really knows with any degree of accuracy what acreage was planted to oil seeds in the Ukraine this year, what yield may be expected, or how much of the resulting oil will be available for non-farm use."

433 The Ukrainian people set high hopes on the 1946 harvest. However,
241 in the very summer when a good crop would have made all the difference,
649 the greatest drought since 1891 destroyed their prospects. It affected a vast area from Moldavia to the Urals, south to the Kuban and north to Moscow. The earth was parched; and the crops, burnt by the hot summer sun, had little to draw upon because rain and snowfall in the winter of 1945-46 had been poor. Hopes withered with the wheat. The potato crop too was affected: a hot wind out of Asia dried the plants, and dwarfed the tubers.

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1 Oblast: a district similar, for administrative purposes, to a county.

The Five-Year Plan in Ukrainian Agriculture

According to the Five-Year Plan 1946-50 the crop area of the Ukrainian S.S.R. in 1950 is to reach 30.5 million hectares, of which 21.3 million are to be planted on the collective farms. The distribution of major crops is planned as follows.

TABLE XIII

Ukraine: Crop Area in 1950 (Planned)
(hectares)

	Total area	Including on the collective farms
Grain crops	19,600,000	14,100,000
Industrial crops	2,600,000	2,200,000
Melons, potatoes, and other vegetables	2,800,000	1,000,000
Fodder crops	5,400,000	4,000,000

Source: The Five-Year Plan, 1946-50

The area sown to sugar beet in 1950 is fixed at 830,000 hectares, and to sunflower, 801,000 hectares. The hopfields are to be rehabilitated, and the area of vineyards growing European varieties of grapes is to be expanded. Measures are to be taken to drain 40,000 hectares and irrigate 30,000 hectares of farm land; and all engineering work needed to ensure normal production is to be restored.

Average yields of Ukrainian crops in 1950 are envisaged as follows: grain, 1.42 tons per hectare (compare 1939 average 1.36); flax, 0.42 tons; sugar beet, 19 tons; and potatoes, 11.2 tons per hectare.[1]

In the entire Soviet Union in 1950 the grain harvest is planned at 127 million tons, of which the Ukraine is to produce 27.8 million tons, or more than one-fifth. The Ukraine's sugar beet harvest is fixed at 15.7 million tons, representing over 60 per cent. of the sugar beet harvest of the U.S.S.R. in 1950. The production of potatoes is expected to be 23 million tons.

The following table compares these targets with pre-war production.

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1 Pravda Ukrainy, Kiev, August 28, 1946.

TABLE XIV

185 433 241 Ukraine: Planned Production in 1950 Compared with 1940 and 1913 (see Note)

(million metric tons)

	1913	1940	1950
Grain	20	28	27.8
Sugar beet	8.9	14.8	15.7
Potatoes	about 5[1]	21.5	23

1 According to the report in Pravda, the potato harvest in 1940 was "over 4 times" that of 1913.

Source: Pravda Ukrainy, Kiev, August 28, 1946.

[728] Note: In comparing the 1950 target figures with pre-war production it is important to bear in mind the territorial revisions which occurred in the Ukraine after 1939, when she regained Western Ukraine and part of Bessarabia, lost a part of the Moldavian Autonomous Republic (which, together with the Moldavian Section of Bessarabia, then became a separate Union Republic), and added Northern Bukovina and Transcarpathian Ukraine.

[731] Thus the present area of the Ukraine exceeds its 1938 area by approximately 118,000 kilometres (11,800,000 hectares). However, 311 we do not know precisely how much of this is agricultural land. The 728 arable land in Western Ukraine before the war amounted to 4 million hectares; that of Transcarpathian Ukraine, to 239,000 hectares. In the parts of Bessarabia and Bukovina which were ceded to the Soviet Union, 3,285,800 hectares were classified as arable. If we roughly divide this between Moldavia and the Ukraine in proportion to the total ex-Rumanian area incorporated in each, about 1,300,000 hectares of agricultural land would have been added to the Ukraine in its share of Bessarabia; and the arable area of present-day Ukraine would exceed the 1937 cultivated area by about 5½ million hectares, the potential total being 30.6 million. The fact that the Five-Year Plan fixes the Ukraine's 1950 area of cultivation at 30.5 million hectares seems to support this assumption.

Livestock

231 In 1941 the number of livestock in the Ukraine was estimated at 30.4 million, including 10.5 million cattle and 4.6 million horses.[1]

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1 Statement on March 20, 1946, by Mr. Baranovsky, Ukrainian delegate to the UNRRA Fourth Council Session, published in the "UNRRA Journal", March 21, 1946.

III INDUSTRY AND TRANSPORT

135 311 433 Ukrainian industry is based chiefly on rich deposits of coal in the Donets Basin, iron ore in the Krivoi Rog district (where the ore contains 60 per cent. metal), and manganese ore in the Nikopol area. To utilize this great natural wealth a very large metallurgical and machine-building industry has been built up in the Ukraine. At the same time, many food factories including sugar refineries, have been created to process the food so abundantly produced by Ukrainian farms. In the period between wars, the share of the Ukraine in the country's industrial output declined somewhat, not because of slackened activity - on the contrary, Ukrainian industry continued to be even more intensively developed - but because the policy of the U.S.S.R. was to decentralize, and to expand and develop those areas, particularly the eastern ones which previously had no industry. This lengthening of the industrial pace naturally brought about a certain change in emphasis, so that whereas by 1938 the productivity of Soviet industry as a whole had increased to about eight times the output of Tsarist Russia in 1913; the proportion of Ukrainian output in the total was lessened. For example, in 1928 the Krivoi Rog district of the Ukraine produced 78 per cent. of all the iron ore in the U.S.S.R.; but in 1937, although this district was producing more, its share in the total was only 47 per cent.

War Damage to Industry

727 433 Before they were finally driven from the Ukraine the Germans furiously set about wrecking those Ukrainian industries which still survived. They stripped the plants of equipment and destroyed the buildings; they flooded the coal mines; they completed the destruction of the famous Lenin Hydro-Electric Power Station and the Dnieper Dam - both of which had been partially disabled by the retreating Soviet Army troops on August 28, 1941.

The damage to all branches of industry was tremendous and will take many years to repair, particularly since the shortages of labour and equipment, as well as the scarcity of food have been a hindrance at every step. Some of the difficulties were described in a report of the UNRRA Mission after visits to several of the larger Ukrainian cities in May 1946.

"In our cable...we outlined the condition and needs of industrial plants in six principal Ukrainian cities visited by members of the Mission during May. The pattern is fairly uniform. Many plants were completely destroyed and those which still stood were usually heavily damaged and almost universally gutted of all modern equipment. Included among those industries hardest hit are the heavy capital goods industries, machine tool manufacturing industries, and power stations, as well as the rolling and stationary stock of all forms of transportation, and equipment for processing building materials. So great is

Food Industries

The damage suffered by the Soviet food industry during the German occupation - not counting the destruction of livestock and crops - has been estimated at 17,000 million roubles. Restoration work was begun while the war was still on, and by May 1947, 5,200 food factories had been rebuilt. A fairly large proportion of these restored factories must have been in the Ukraine, where, according to the Soviet Monitor[1] 1,600 out of 1,822 pre-war food factories had been restored by November 6, 1946. The rehabilitated factories had exceeded their 11 months' food output programme by production valued at 12 million roubles (146 million roubles over the corresponding period of 1945).

Sugar

Before the war the output of sugar in the Ukraine was as follows.

TABLE XX

Pre-War Sugar Production: Ukraine and U.S.S.R.
(metric tons)

Year	Soviet Union total	Ukrainian S.S.R.
1928	1,221,200	1,086,400
1932	826,800	559,700
1937	2,377,500	1,789,800

Sources: Socialist Construction, Moscow, 1939; and Statistical Yearbooks of the League of Nations, Geneva, 1936 and 1939.

The Five-Year Plan establishes that in 1946-50 sugar refineries in the Ukraine shall be restored or built capable of handling upwards of 67,000 tons of sugar beet per day. By 1950, according to plan, the output of granulated sugar in the Ukraine will reach 1,637,000 tons, (in the entire Soviet Union, 2.4 million tons).

Forestry

In January 1935 the forest area of the Ukrainian S.S.R. was 3,845,000 hectares - about 0.5 per cent. of the forest area of the entire U.S.S.R.[2] The number of sawing frames in the Republic was 703 out of the Soviet Union total of 6,500 (total capacity, 18.4 million cubic metres).[3] Considering the relatively small forest

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1 November 11, 1946

2 Socialist Construction, Moscow, 1936.

3 Planned Economy, Moscow, 1940, II.

24: Cech and Mellon S-2 (no date) 1944 Ukrainians-Ruthenians

Shepherds blow huge horns to round up their sheep by night

511 464 241 311 In the narrow valleys and on their slopes are cottages and straggling villages where the Ruthenian uplanders live. Nearly, all the huts are made of wood and are flanked by gardens with patches of sunflowers. In the higher altitudes the land consists mainly of meadows, and such meagre fields as there are yield scanty crops of oats, potatoes or hemp—not sufficient to live on. No wonder that during the summer months it is chiefly women and children who can be found at home; the menfolk either fell trees in the forest or earn their living as seasonal labourers in the towns and villages of the more prosperous South.

101 162 These lonely mountains and forests breed a people with a distinct character of their own. Living as they do in seclusion, they not only differ from their Slovak neighbours but show distinct regional differences

23: Shabad N-4 (no date) 1951 Rl Soviet Union Rl
Ukraine RD2

in agriculture (fertilizers) and in other branches of the economy. There are several superphosphate plants on the right bank, a large soda industry in the Artemovsk-Lisichansk area in the north of the Donets Basin, based on local salt deposits, chemical plants tied closely to the coking and the metallurgical establishments, and sulphuric acid and fertilizer plants connected with the metallurgy of zinc.

In addition to zinc, which is imported into the Donets Basin, nonferrous metallurgy includes that of aluminum, which is also imported and worked at Zaporozh'ye on the basis of *Dneproges* power, and of mercury, mined near Nikitovka in the Donbas.

The petroleum and natural-gas industry is of only local importance and is intended to supply the Ukraine with its gas and liquid fuel needs. The oil fields lie in the foothills of the Carpathians, near Borislav and Drogobych. During the current Plan, a natural gas pipe line was laid from Dashava (in the oil fields) to Kiev. The Ukraine also imports petroleum from Baku via the ports of Osipenko and Odessa, and the station of Trudovaya (Donbas) is the terminus of a kerosene pipe line from the Groznyy fields.

The textile industry (wool, cotton, and linen milling) supplies only local needs. The food industry, on the other hand, is of national importance. This is true especially of the sugar-refining industry, located mainly in the Vinnitsa and Kiev oblasts, on the right bank, and in the Poltava and Kiev oblasts, on the left bank.

The agriculture of the Ukrainian SSR, less important than heavy industry with respect to the value of production, occupies, nonetheless, a major position in the economy of the USSR. Arable land occupies 60 percent of the total area. Prior to the Second World War the Ukraine was one of the regions best equipped with machine-tractor stations and agricultural machinery. Among the cereals, winter wheat in the west, spring wheat in the east, and barley are most important. The sugar beet is by far the major industrial crop; sunflower, cotton, and tobacco are grown to a lesser extent. Orchard farming is popular and produces melons and pumpkins, garden fruits (apples, pears, plums, and cherries), and in the south, apricots and grapes. Horses, cattle, and pigs are raised throughout the region.

The right-bank Poles'ye is least developed agriculturally. Marshes and forests occupy most of the area. In the isolated patches of moist arable land, potatoes, buckwheat, flax, and hemp are the chief crops. The area abounds, however, in pasture land, and dairy farming is

23: Shabad N-4 (no date) 1951 R1 Soviet Union R1
Ukraine RD1

strongly developed. In the left-bank Poles'ye, land has long been cultivated and drained. There are occasional marshy and forested sections, mainly between the Dnieper and the Desna. The chief crops are hemp, tobacco, buckwheat, and leguminous plants. Orchard farming is important. The right-bank wooded steppe is the principal agricultural region of the Ukraine. It combines fertile black earth with a warm and moist climate, and the ready availability of phosphate fertilizer. The sugar beet is predominant and closely linked with the sugar industry. Among the cereals, rye, winter wheat, and oats are most important; potatoes and leguminous crops are also grown. The by-products of sugar refining and fodder crops support large livestock herds raised for dairy products and meat. The growing of fruit is of national importance. Vineyards lie in protected valleys near the Dniester River. The left-bank wooded steppe grows crops similar to those of the right bank. Sugar beets decrease toward the east and are gradually replaced by sunflowers. Similarly, winter wheat gradually makes way for spring wheat. In the southern steppes, where a drier climate prevails, wheat is the most important crop. Rye, corn, and barley are also grown, the latter mainly in the very dry districts. Along the Sea of Azov and westward to the lower Dnieper cotton has been introduced in recent years and is grown without irrigation. Ukrainian cotton is of rather poor quality and produces little fiber. Melons are grown to a great extent, and there are vineyards along the Sea of Azov coast and around Odessa. In the Carpathian realm, the northern foothills abound in wheat and sugar beets. Up-slope dairy farming is important. Agriculture is poorly developed in the Transcarpathian Ukraine. Large areas are covered by forests and pasture land. In the vicinity of the large metropolitan centers, such as Kiev, Khar'kov, L'vov, as well as in the densely inhabited sections of the Donbas, around Krivoy Rog, and along the Dnieper, truck produce and dairy farming are most important.

The intensely developed economy of the Ukraine requires a correspondingly well-developed transportation network. In view of the shallowness of most of the Ukrainian rivers, the railroads bear most of the load. The Ukraine has the densest rail network of the USSR, the chief centers being at L'vov, Kiev, and Khar'kov. Among recently completed lines and spurs, the direct Donbas-Moscow trunk is of the greatest significance. Only since 1932, when the construction of the *Dneproges* dam was completed and an artificial lake was created at the site of the rapids (a former obstacle to navigation), has the Dnieper become the

23: Shabad N-4 (no date) 1951 Rl Soviet Union Rl
Ukraine RD1

tion. It lies between the Dniester River and the Kiliya arm of the Danube delta and has Moldavian minorities in the northwest and Bulgarian elements in the west, near Bolgrad. The main crops are wheat, barley, and corn in the northwest, where sheep are also extensively raised. Near the Black Sea there are large vineyards and orchards. The oblast is one of the most important wine-producing districts of the USSR. Along the coast there are fisheries and saltworks. Building materials constitute the only mineral resources.

Izmail (Rumanian *Ismaïl*) is a port and a fishing center on the Kiliya arm of the Danube delta. It produces caviar and has an active grain and lumber trade.

Kiliya (Rumanian *Chilia Nouă*) is a fishing port on the Danube delta, east of Izmail.

Belgorod-Dnestrovskiy (Rumanian *Cetatea Albă*) was known as Akkerman until 1944. It is a port on the Dniester Liman, trading in wine, fish, and wool. It has fisheries and saltworks and is surrounded by vineyards and orchards.

POLES'YE

The Ukrainian Poles'ye, which includes the oblasts of Zhitomir and Chernigov and the northern sections of Kiev and Sumy oblasts, is distinguished by a relatively high humidity, wooded terrain (especially in the west), and podsolic soils, similar to its Belorussian counterpart, which adjoins it in the north. Among the sparsely settled population, industries are poorly developed. Intensive crops are grown in the forest clearings, including flax, hemp, potatoes, and forage crops, which support some dairy-cattle herds. In the south, along the border of the wooded steppe zone, sugar beets and tobacco are cultivated. The Poles'ye is the only Ukrainian region (not counting the western oblasts, which have not been long exposed to the Soviet planned economy) where rye acreage exceeds that of wheat. Buckwheat is also grown as a local food staple. Industry is largely based on agricultural and lumber resources. Among the food industries, starch processing and distilling are the chief activities. There are woodworking and furniture plants, porcelain works, tanneries, and hemp and flax retting installations. Among the mineral resources, one should note granite, sandstone, used in the making of refractory bricks, and labradorite. Peat extraction is important as a fuel basis.